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EXAMINER	
SUKHAPHADHANA, CHRISTOPHER T	
ART UNIT	**PAPER NUMBER**
2625	4

DATE MAILED: 12/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/750,602	SHAH, KISHAN B.	
	Examiner	Art Unit	
	Christopher T. Sukhaphadhana	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 December 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: Note on **page 6, line 19**, consider inserting a comma between "Redmond" and "Washington".

Appropriate correction is required.

Drawings

2. The drawings are objected to because note on **Fig 3, ref no 316**, consider inserting a space between "Select" and "Initial". A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

3. **Claims 1, 16, and 17** are objected to because of the following informalities: Note in **claim 1**, consider removing the "and" at the end of line 8. Note in **claim 16**, line 5, consider changing "at last one" to --at least one--. Note in **claim 17**, line 10, consider changing "a initial condition" to --an initial condition--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 15-20** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. **Claim 15** recites the limitation "the at least one object recognized" on the second-to-last line of the claim. There are two possible antecedent bases for this limitation, namely: "at least one first object" on line 16 of the claim and "at least one second object" on line 19 of the claim. The antecedent basis is not clear for this limitation and thus, fails to particularly point out and distinctly claim the subject matter of the invention.

7. **Claim 16** uses similar wordage as claim 15 in the second to last line of the claim.

8. **Claim 20** as filed depends on claim 20. For the purposes of applying prior art, Examiner will assume that claim 20 is dependent on claim 17.

9. **Claims 16-20** inherit indefinite wordage at least by dependency on claim 15.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. **Claims 1-5 and 8-12** are rejected under 35 U.S.C. 102(b) as being anticipated by Simard (U.S. Patent 5,572,604, newly cited, "Simard").

12. In regards to **claim 1**, Simard discloses a method (Fig 5) of recognizing at least one object (Fig 2) in a digitized representation of an image, comprising: receiving (Fig 5, Example) the digitized representation of the image, the representation having a first resolution; creating a reduced-resolution version of the image (col 7, lines 50-57, and col 9, lines 11-20) responsive to the digitized representation of the image, the reduced-resolution version of the image having a second resolution lower than the first resolution; identifying a value (paragraph bridging col 7-8, K prototypes) of each of at least one recognition initial condition responsive to at least a portion of the reduced resolution version of the image; and recognizing (paragraph bridging col 8-9) the at least one object represented in the digitized representation of the image responsive to the value of each of the at least one recognition initial condition identified.

13. In regards to **claim 2**, Simard further discloses the identifying step comprising: providing a plurality of sets of values (paragraph bridging col 7-8, K prototypes) of at least one initial condition; for each of the sets of at least one initial condition, identifying a confidence level (paragraph bridging col 8-9) of recognition by attempting to recognize from the reduced-resolution version of the image the at least one object (prototype) responsive to the at least one initial condition in the set; and selecting (col 8, lines 60-61) at least one of the values of the at least one initial conditions in the set responsive to the confidence levels identified.

14. In regards to **claim 3**, Simard further discloses in col 8, line 60, the selecting step comprising selecting a value of each of at least one initial condition corresponding to a highest confidence level from a plurality of the confidence levels identified.

15. In regards to **claim 4**, Simard further discloses in col 8, line 58, the selecting step comprising selecting a value of each of at least one initial condition corresponding to a confidence level exceeding a threshold.

16. In regards to **claim 5**, Simard further discloses in col 9, line 13, the creating step comprising calculating an average of at least one value of a plurality of pixels of the digitized representation of the image.

17. In regards to **claims 8-12**, all the elements set forth in these claims have been addressed in the arguments of claims 1-5, respectively.

18. As best understood in light of the 35 USC 112, 2nd paragraph, rejections, **claims 1-20** are rejected under 35 U.S.C. 102(e) as being anticipated by Takaoka (U.S. Patent 6,137,905, newly cited, "Takaoka").

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

19. In regards to **claim 1**, Takaoka discloses a method (Fig 24) of recognizing at least one object in a digitized representation of an image, comprising: receiving (col 21, lines 50-57) the digitized representation of the image, the representation having a first resolution; creating a reduced-resolution version of the image (col 23, lines 17-24) responsive to the digitized

representation of the image, the reduced-resolution version of the image having a second resolution lower than the first resolution; identifying a value (col 22, lines 28-36, Japanese language) of each of at least one recognition initial condition responsive to at least a portion of the reduced resolution version of the image; and recognizing (col 22, lines 56-62) the at least one object represented in the digitized representation of the image responsive to the value of each of the at least one recognition initial condition identified.

20. In regards to **claim 2**, Takaoka further discloses the identifying step comprising: providing a plurality of sets of values (col 22, lines 37-43, English language) of at least one initial condition; for each of the sets of at least one initial condition, identifying a confidence level (col 22, lines 44-55) of recognition by attempting to recognize from the reduced-resolution version of the image the at least one object responsive to the at least one initial condition in the set; and selecting (col 22, lines 56-62) at least one of the values of the at least one initial conditions in the set responsive to the confidence levels identified.

21. In regards to **claim 3**, Takaoka further discloses in col 27, line 13, the selecting step comprising selecting a value of each of at least one initial condition corresponding to a highest confidence level from a plurality of the confidence levels identified.

22. In regards to **claim 4**, Takaoka further discloses in col 22, line 49, the selecting step comprising selecting a value of each of at least one initial condition corresponding to a confidence level exceeding a threshold.

23. In regards to **claim 5**, Takaoka further discloses in col 23, lines 17-24, the creating step comprising calculating an average of at least one value of a plurality of pixels of the digitized representation of the image.

24. In regards to **claim 6**, Takaoka further discloses in col 27, line 35, recognizing at least one additional object represented in the digitized representation of the image responsive to the value of at least one recognition initial condition identified responsive to a confidence level exceeding a threshold.

25. In regards to **claim 7**, Takaoka further discloses attempting to recognize at least one additional object (col 22, lines 37-43, English language) represented in the digitized representation of the image responsive to the value of at least one recognition initial condition identified, the attempting step comprising producing a confidence level (col 22, lines 44-55) of the attempt; and responsive to the confidence level of the attempt below a threshold (col 22, line 49): repeating the identifying step (col 28, lines 23-67); and recognizing the at least one object represented in the digitized representation of the image responsive to the value of each of the at least one recognition initial condition identified during the repeating step (col 29, lines 4-17).

26. In regards to **claims 8-14**, all the elements set forth in this claim have been addressed in the argument of claims 1-7, respectively.

27. In regards to **claim 15**, Takaoka discloses a system for recognizing objects (Fig 24), the system comprising: a downsampler (col 21, lines 50-57) having an input coupled to a system input operatively coupled for receiving a representation of an image having a first resolution, the downsampler (col 23, lines 17-24) for producing and providing at an output a reduced-resolution version of the image responsive to the representation of the image received at the downsampler input, the reduced resolution version of the image having a second resolution lower than the first resolution; and a recognition engine (col 22, lines 56-62) having a first input coupled to the downsampler output for receiving the reduced-resolution version of the image and a second input

coupled to the system input for receiving the representation of the image, the recognition engine for: at least attempting to recognize at least one first object (col 22, lines 28-36, Japanese language) in the reduced resolution version of the image received at the first input, at least one time; recognizing at least one second object in the representation of the image received at the second input; and providing a representation (col 22, lines 56-62, recognition result) of the at least one object recognized at a first output coupled to a system output.

28. In regards to **claim 16**, Takaoka further discloses the system additionally comprises an initial condition selector (col 22, lines 56-62) for selecting and providing at an output a plurality of sets of initial conditions, each set different from at least one of the other sets (different languages); and the recognition engine additionally has a third input (col 28, lines 1-22, plurality of languages) coupled to the initial condition selector output for receiving the plurality of sets of initial conditions and the recognition engine performs the attempt (col 28, lines 8-22) on the at least one object at least one time for each of the sets of initial conditions received at the third recognition input.

29. In regards to **claim 17**, Takaoka further discloses the recognition engine: additionally has a fourth input for receiving an additional set of initial conditions (col 28, lines 1-22, plurality of languages); performs the recognition responsive to the additional set of initial conditions (col 28, lines 8-22); is additionally for providing a recognition confidence level at a second output responsive to said attempt (col 28, line 15), for each of the at least one times; and the system additionally comprising an initial condition identifier having a first input coupled to the recognition second output for receiving the recognition confidence level for each of the at least one times (col 22, lines 56-62), and a second input coupled to the initial condition selector output

for receiving each of the sets of initial conditions (ref no 104, Fig 24), the initial condition identifier for selecting and providing at an output coupled to the fourth recognition engine input the additional set of initial conditions responsive to the sets of initial conditions received at the initial condition identifier second input and the recognition confidence level for each of the at least one times received at the initial condition identifier first input.

30. In regards to **claim 18**, Takaoka further discloses in col 28, lines 16-19, the initial condition identifier selecting the additional set of initial conditions additionally responsive to a threshold confidence level.

31. In regards to **claim 19**, Takaoka further discloses in col 28, lines 11-16, the at least one time comprises a plurality of times; and in col 28, lines 16-19, the initial condition identifier selecting the additional set of initial conditions responsive to a confidence level for at least one of the at least one times relative to at least one other confidence level for at least a different of the at least one times.

32. In regards to **claim 20**, Takaoka further discloses in col 28, lines 1-22, plurality of languages, the recognition engine additionally recognizes at least one third object in the representation of the image received at the second input responsive to the additional set of initial conditions and a confidence level corresponding to the at least one third object.

Claim Rejections - 35 USC § 103

33. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

34. **Claims 6, 7, 13, and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Simard (U.S. Patent 5,572,604, newly cited, "Simard") as applied to claim 1 in combination with Nicholson et al (U.S. Patent 5,729,637, newly cited, "Nicholson").

35. In regards to **claim 6**, Simard does not expressly disclose the method additionally comprising the limitation as claimed.

Nicholson teaches recognizing at least one additional object (col 13, lines 44-58, WORD(W)) represented in the digitized representation of the image responsive to the value of at least one recognition initial condition (col 12, lines 58-67, CHAR(C)) identified responsive to a confidence level exceeding a threshold (paragraph bridging col 13-14).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Nicholson's teachings into Simard's method because it can utilize the additional recognition of grouping characters into words to produce more accurate levels of pattern recognition (see also col 14, lines 20-33).

36. In regards to **claim 7**, Simard does not expressly disclose the method additionally comprising the limitations as claimed.

Nicholson teaches attempting to recognize at least one additional object (col 13, lines 44-58, Word(W)) represented in the digitized representation of the image responsive to the value of at least one recognition initial condition identified, the attempting step comprising producing a confidence level (paragraph bridging col 13-14) of the attempt; and responsive to the confidence level of the attempt below a threshold (col 14, line 38): repeating the identifying step (col 14, lines 20-33); and recognizing the at least one object represented in the digitized representation of

the image responsive to the value of each of the at least one recognition initial condition identified during the repeating step (Fig 7a and 7b).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Nicholson's teachings into Simard's method because it can utilize the additional recognition of grouping characters into words to produce more accurate levels of pattern recognition (see also col 14, lines 20-33).

37. In regards to **claims 13 and 14**, all the elements set forth in these claims have been addressed in the arguments of claims 6 and 7, respectively.

38. As best understood in light of the 35 USC 112, 2nd paragraph, rejections, **claims 15-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Simard (U.S. Patent 5,572,604, newly cited, "Simard").

39. In regards to **claim 15**, Simard discloses a system for recognizing objects (Fig 5), the system comprising: a downsampler (col 7, lines 50-57, and col 9, lines 11-20) having an input coupled to a system input operatively coupled for receiving a representation of an image having a first resolution, the downsampler for producing and providing at an output a reduced-resolution version of the image responsive to the representation of the image received at the downsampler input, the reduced resolution version of the image having a second resolution lower than the first resolution; and a recognition engine (Fig 5) having a first input coupled to the downsampler output for receiving the reduced-resolution version of the image and a second input coupled to the system input for receiving the representation of the image, the recognition engine for: at least attempting to recognize at least one first object (col 7, lines 58, one unknown pattern) in the

reduced resolution version of the image received at the first input, at least one time; and providing a representation (paragraph bridging col 8-9) of the at least one object recognized at a first output coupled to a system output.

Simard does not expressly disclose recognizing at least one second object in the representation of the image received at the second input.

However, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply the same process Simard applied towards recognizing a first object to recognizing a second object, and thus meeting the limitation as claimed, because since characters as exampled in Fig 3 usually do not occur alone, one of ordinary skill would want to recognize all the characters, say, in a word or a sentence.

40. In regards to **claim 16**, Simard further discloses the system additionally comprises an initial condition selector (col 8, lines 9-21) for selecting and providing at an output a plurality of sets of initial conditions, each set different from at least one of the other sets (col 3, lines 44-63); and the recognition engine additionally has a third input (Fig 5, third prototype) coupled to the initial condition selector output for receiving the plurality of sets of initial conditions and the recognition engine performs the attempt (paragraph bridging col 7-8) on the at least one object at least one time for each of the sets of initial conditions received at the third recognition input.

41. In regards to **claim 17**, Simard further discloses the recognition engine: additionally has a fourth input for receiving an additional set of initial conditions (Fig 5, fourth prototype); performs the recognition responsive to the additional set of initial conditions (paragraph bridging col 7-8); is additionally for providing a recognition confidence level at a second output responsive to said attempt (paragraph bridging col 8-9), for each of the at least one times; and the

system additionally comprising an initial condition identifier having a first input coupled to the recognition second output for receiving the recognition confidence level for each of the at least one times (col 8, lines 1-8), and a second input coupled to the initial condition selector output for receiving each of the sets of initial conditions (Fig 5, col 8, lines 9-21, and the paragraph bridging col 8-9), the initial condition identifier for selecting and providing at an output coupled to the fourth recognition engine input the additional set of initial conditions responsive to the sets of initial conditions received at the initial condition identifier second input and the recognition confidence level for each of the at least one times received at the initial condition identifier first input.

42. In regards to **claim 18**, Simard further discloses in col 8, lines 8-21, the initial condition identifier selecting the additional set of initial conditions additionally responsive to a threshold confidence level.

43. In regards to **claim 19**, Simard further discloses in col 8, lines 8-21, and Fig 5, the at least one time comprises a plurality of times; and in col 8, lines 8-21, the initial condition identifier selecting the additional set of initial conditions responsive to a confidence level for at least one of the at least one times relative to at least one other confidence level for at least a different of the at least one times.

44. In regards to **claim 20**, Simard does not expressly disclose the recognition engine additionally recognizes at least one third object in the representation of the image received at the second input responsive to the additional set of initial conditions and a confidence level corresponding to the at least one third object.

However, for the same reasons of obviousness as presented for claim 15, one of ordinary skill would want to recognize at least one third object in a similar manner as applied towards the unknown pattern of col 7, line 58, in order to recognize e.g. characters grouped in a word.

Conclusion

45. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shackleton et al (U.S. Patent 5,719,951) discloses a method of processing an image including extracting from the image data representing each feature.

46. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher T. Sukhaphadhana whose telephone number is 703-306-4148. The examiner can normally be reached on 9a-4p M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh M. Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3800.

CTS

CTS

BHAVESH M. MEHTA
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